

RESEARCH ARTICLE

Designing a Mobile-Based Digital Financial Application to Enhance Financial Access for Indonesian Communities

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Abstract

The issue of financial access remains a significant challenge in Indonesia, particularly in remote and underdeveloped regions. Digital financial services offer a promising solution to accelerate and simplify financial access; however, many individuals are still unable to fully utilize these services. This research aims to design a mobile-based digital financial application that can enhance financial access for Indonesians in a simple, fast, and efficient manner. The study employs both qualitative and quantitative approaches, including literature reviews, interviews, surveys, and application design modeling. These methodologies will provide a comprehensive understanding of the barriers and facilitators to digital financial access. The results of this research will inform the design and development of a digital financial application tailored to the needs and preferences of users. The anticipated outcome is a digital financial application that not only facilitates financial transactions but also improves financial literacy and broadens access to digital financial services. This application is expected to simplify everyday financial activities such as bill payments, money transfers, and the purchase of financial products. In the long term, the application aims to assist Indonesians in accelerating economic development by easing access to digital financial services, reducing reliance on conventional financial services that are often difficult to access, and providing a modern, user-friendly alternative. Moreover, the application seeks to address the low level of financial literacy by incorporating educational features that empower users to make informed financial decisions. By doing so, it contributes to sustainable economic growth and financial inclusion across diverse Indonesian communities.

Keywords

Digital Financial Application; Digital Economy; Financial Access; Indonesian Communities; Financial Literacy.

1 | INTRODUCTION

In the current era of the digital economy, financial technology is rapidly advancing in Indonesia. One of the most popular forms of financial technology today is digital financial applications or mobile banking. However, financial access in Indonesia remains a significant challenge, particularly for communities living in remote or hard-to-reach areas by conventional financial services. Additionally, the financial literacy of the Indonesian population is still relatively low, which limits the utilization of financial technologies like mobile banking. Therefore, this research aims to design a mobile-based digital financial application to improve financial access for Indonesians, especially in remote areas, and enhance financial literacy. The core research question addressed in this study is how to design and develop a mobile-based digital financial application that can enhance financial access for Indonesians and improve their financial literacy. The research will employ a system information design and development approach consisting of several stages. Initially, a needs analysis will be conducted to understand the requirements and challenges faced by Indonesians in accessing financial services. This will be followed by the design of a mobile-based digital financial application that addresses these needs and challenges. The subsequent phase involves the development of the application, including its implementation and testing. The application will undergo user trials before a comprehensive evaluation to ensure it meets the desired standards. Data collection methods for this research include literature review, observation, interviews, and surveys. The collected data will be analyzed using both qualitative and quantitative methods to obtain accurate and reliable information. During the application design phase, an object-oriented design method will be employed to ensure the application is well-structured and easy to implement. This method allows researchers to effectively identify and address issues that arise during the application design process.

Previous studies on digital financial applications and mobile banking have been conducted; however, this research is unique in its focus on improving financial access for communities in remote areas and enhancing financial literacy. The application to be designed will be tailored to the needs and characteristics of the Indonesian population. The development of digital financial services in non-bank financial institutions is also rapidly progressing. For instance, Ulya and Hendratmi (2020) developed digital financial services for the cooperative at Pondok Pesantren Sunan Drajat Lamongan. Meanwhile, Kurnia and Aziza (2021) focused on designing a user-friendly interface for a digital personal finance assistant. Research on digital financial services and fintech is also abundant, as discussed by Pazarbasioglu *et al.* (2020), Marginingsih (2021), and Kandpal and Mehrotra (2019). Marginingsih (2021) explored fintech's role in national financial inclusion during the COVID-19 pandemic, while Kandpal and Mehrotra (2019) examined the role of fintech and digital financial services in financial inclusion in India. The novelty of this research lies in the development of a mobile-based digital financial application that facilitates user access to digital financial services. Moreover, the study will address Islamic digital finance and digital financial literacy support for digital SMEs, topics discussed by Setiani *et al.* (2020) and Rahmiyanti and Arianto (2023). The increasing popularity of digital financial services in Indonesia and other countries underscores their potential to facilitate financial inclusion. Shaikh *et al.* (2023) demonstrated that mobile money services could drive digital financial inclusion, while Gbongli *et al.* (2019) highlighted how the technology acceptance model can predict the acceptance and sustainability of mobile-based money services. Digital marketing and fintech have transformed the business landscape in Indonesia, as discussed by Yoyo Sudaryo *et al.* (2020), while Morgan & Trinh (2020) and Saptia *et al.* (2021) examined Vietnam's and Indonesia's experiences in expanding fintech-based financial access and learning from neighboring countries. Lutfi *et al.* (2021) discussed the sustainability of digital financial inclusion in Jordan, and Kurniawan *et al.* (2021) highlighted the potential of digitalization to promote waste utilization and realize a circular economy in Indonesia. Additionally, Budiyo & Sukamulja (2023) emphasized the need for digital consumer protection as a mediator between mobile money usage and financial inclusion. This research is novel in its focus on developing a mobile-based digital financial application to enhance financial access for communities in remote areas and improve financial literacy among Indonesians. Furthermore, the study will explore Islamic digital finance and digital financial literacy support for digital SMEs, topics that are relatively new and relevant to the current state of digital finance in Indonesia. The research also considers the importance of digital consumer protection as a mediator between mobile money usage and financial inclusion.

2 | BACKGROUND THEORY

In the digital economy era, the development of financial technology (fintech) in Indonesia is advancing rapidly. One of the most prominent forms of financial technology is mobile banking, which has made a significant contribution to the financial landscape of the country. Mobile banking allows users to conduct various financial transactions easily and quickly through their mobile devices, transforming how people interact with banking services (Mutiasari, 2020; Rizal & Wali, 2018). However, despite the growing popularity of digital finance, challenges remain, particularly in providing financial access to remote areas where conventional financial services are limited.

A large portion of Indonesia's population, especially those in remote regions, still faces difficulties in accessing financial services (Wahyuddin *et al.*, 2022; Ginantra *et al.*, 2020). Mobile banking, as part of the digital financial ecosystem, has the potential to bridge this gap by providing easily accessible financial services to underserved populations. Understanding the dynamics of financial inclusion and the obstacles faced by Indonesians, particularly in remote areas, is crucial in designing effective solutions. Additionally, addressing the low financial literacy in the community is key to ensuring the successful adoption of digital financial tools like mobile banking (Rahmayanti *et al.*, 2019). Financial literacy plays a critical role in the successful implementation and adoption of digital financial services. In Indonesia, financial literacy levels are relatively low. This poses a challenge because individuals need to understand the benefits and functionalities of digital financial tools such as mobile banking to use them effectively. Therefore, any strategy aimed at enhancing financial inclusion must include initiatives to improve financial literacy among the targeted population. The theoretical framework for this study is based on the understanding that an effective mobile banking application should not only provide convenient financial services but also include educational features to enhance financial literacy. By combining access and education, the proposed application aims to create a holistic solution to the challenges faced by Indonesians in remote areas.

The research methodology involves a systematic approach to designing and developing an information system, consisting of several stages. The initial stage involves an in-depth analysis of the needs and challenges faced by Indonesians in accessing financial services. This includes a combination of literature review, observation, interviews, and surveys to gather comprehensive data. The following stages involve the design and development of a mobile banking application. The design phase will employ an object-oriented design methodology to ensure that the application is not only well-structured but also easy to implement. This approach allows for more effective identification and resolution of potential issues during the design phase. The development phase involves the implementation and testing of the mobile banking application. User trials will be conducted to ensure that the application meets the desired standards. Data collected during this phase will be analyzed using qualitative and quantitative methods to ensure accuracy and reliability. Although previous research has explored various aspects of digital financial services and mobile banking, the uniqueness of this study lies in its specific focus on enhancing financial access in remote areas and improving financial literacy among Indonesians. The application to be developed will be tailored to the unique needs and characteristics of the Indonesian population, ensuring its relevance and effectiveness. Furthermore, this study will contribute to the growing body of knowledge on the development of digital financial services in non-bank financial institutions. This aligns with the latest trends in the expansion of digital financial services, as demonstrated by studies focusing on digital financial services in cooperatives (Ulya & Hendratmi, 2020) and user-friendly interface design for digital financial assistants (Kurnia & Aziza, 2021).

The research also aligns with current trends in digital financial research, such as exploring the role of fintech in national financial inclusion during the COVID-19 pandemic (Pazarbasioglu *et al.*, 2020; Marginingsih, 2021). Additionally, the study includes discussions on Islamic digital finance and digital financial literacy support for digital SMEs (Rahmiyanti & Arianto, 2023; Setiani *et al.*, 2020). The popularity of mobile money services as a driver of digital financial inclusion is also considered (Shaikh *et al.*, 2023). Other studies in a broader context include discussions on the transformational effects of digital marketing and fintech on the business landscape in Indonesia (Sudaryo *et al.*, 2020). Studies on the experiences of Vietnam and Indonesia in expanding financial access through fintech (Morgan & Trinh, 2020; Saptia *et al.*, 2021) and the sustainability of digital financial inclusion in Jordan (Lutfi *et al.*, 2021) provide a broader perspective on global trends in digital finance. Finally, the research acknowledges the importance of consumer protection in the digital realm, acting as a mediator between mobile money usage and financial inclusion. This emphasizes the need for responsible and secure digital financial services to build trust among users (Ghongli *et al.*, 2019). The research also recognizes the potential of digitalization in promoting waste utilization and achieving a circular economy in Indonesia (Kurniawan *et al.*, 2022). This underscores the significance of digital financial services in overall economic development (Pazarbasioglu *et al.*, 2020). The theoretical framework for this research integrates digital financial inclusion, mobile banking, financial literacy, system design methodology, and current trends in digital financial research. The specific focus on improving financial access in remote areas, enhancing financial literacy, and considering Islamic digital finance and support for digital SMEs aligns with the evolving digital financial landscape in Indonesia. This research aims to provide valuable insights and solutions to the challenges faced by Indonesians in accessing financial services and improving financial literacy.

3 | METHOD

This research will employ both qualitative and quantitative approaches to understand the needs and challenges faced by the Indonesian population in accessing digital financial services. The research methodology will encompass four main stages: literature review, interviews, surveys, and the design of a financial application

prototype.

1) Stage 1: Literature Review

In this stage, a comprehensive literature review will be conducted on digital financial services and the factors influencing accessibility and acceptance among the public. Several factors to be analyzed include technological infrastructure, financial literacy, cost, regulation, and security. This stage aims to gather a theoretical foundation and contextual understanding of the current landscape of digital financial services in Indonesia, identifying gaps and opportunities for improving access and adoption.

2) Stage 2: Interviews

This stage involves conducting interviews with various stakeholders related to digital financial services, including representatives from banks, fintech companies, and individuals who have used digital financial services. The interviews aim to gain deeper insights into the factors affecting accessibility and acceptance of digital financial services, as well as user preferences in using digital financial applications. These qualitative insights are crucial for understanding the nuanced experiences and expectations of different user groups, which will inform the design and development of the application.

3) Stage 3: Surveys

At this stage, surveys will be conducted among the Indonesian population to assess their awareness and readiness to use digital financial services, as well as their needs and preferences in using financial applications. The survey will be administered through both online and offline questionnaires to reach a broad demographic. The data collected will provide quantitative evidence on the current state of digital financial literacy and demand, which will be instrumental in tailoring the application's features to meet user expectations.

4) Stage 4: Financial Application Design

The findings from the research will be utilized to design and develop a mobile-based digital financial application tailored to user needs and preferences. The application will be designed with consideration of the factors influencing accessibility and acceptance of digital financial services, as well as user preferences in using such applications. The next step involves developing the application based on user needs analysis and literature review findings. This stage includes designing the application interface, developing application features, and conducting user trials with a limited group of users. After the application is developed, the next step is to conduct testing and evaluation. Testing involves engaging a representative group of users from various backgrounds to assess the application's effectiveness, efficiency, and user satisfaction. Evaluation is conducted by comparing the application testing results against predetermined success indicators. Following testing and evaluation, improvements and refinements are made based on feedback from the user group. This stage involves enhancing the application interface, developing additional features, and improving performance and security quality. Finally, the implementation and dissemination stage involves making the developed and refined application available to the Indonesian public through various social media channels, online marketing, and partnerships with existing financial institutions and fintech companies.

The research aims to produce a mobile-based digital financial application that can improve financial access for the Indonesian population. The application is expected to facilitate financial transactions such as bill payments, money transfers, and the purchase of other financial products. Additionally, the application aims to enhance financial literacy among Indonesians and provide broader access to digital financial services. In the long term, it is hoped that this digital financial application can assist Indonesians in accelerating economic development through easier access to digital financial services. The application can reduce reliance on conventional financial services, which are often difficult to access, and provide a more modern and user-friendly alternative. The design of the prototype/model and the feasibility study are crucial components of this research on the design of a mobile-based digital financial application to improve financial access for Indonesians. The prototype/model design will visually demonstrate how the digital financial application will function, including its features. Meanwhile, the feasibility study will evaluate the technical, financial, and market feasibility of the application design. In conducting the prototype/model design and feasibility study, the researchers will adhere to the one-year timeline and budget provided by the Beginner Lecturer Research program. The facilities available at STMIK Indonesia Banda Aceh will also be considered in the development of the prototype/model and feasibility study, ensuring that the digital financial application can be effectively implemented in the community.

4 | RESULTS AND DISCUSSION

4.1 Results

The study aims to design and develop a mobile-based digital financial application to enhance financial access for the Indonesian population. Initially, a thorough literature review was conducted to understand digital

financial services and the factors affecting accessibility and public acceptance. These factors include technological infrastructure, financial literacy, cost, regulation, and security. The literature review revealed that advancements in digital financial technology offer significant opportunities to increase financial inclusion in Indonesia. The improving and expanding technological infrastructure provides a strong foundation for implementing digital financial services. However, low financial literacy among the population and regulatory frameworks that are not fully supportive remain major challenges. Therefore, designing a digital financial application must consider aspects of financial literacy and supportive regulatory policies.

In the initial stage, an in-depth literature study was conducted to understand the digital financial services landscape in Indonesia. The results of this study indicate that technological advances provide great opportunities to increase financial inclusion. The increasingly better technological infrastructure provides a strong foundation for the implementation of digital financial services. However, low financial literacy and regulations that are not yet fully supportive are the main challenges that must be overcome. Therefore, the design of digital financial applications must consider aspects of financial literacy and supportive regulatory policies. Furthermore, interviews with various stakeholders, including representatives of banks, fintech companies, and users of digital financial services, provided deeper insights into the factors that influence public access to and acceptance of these services. The results of the interviews revealed that despite the increasing use of digital financial services, concerns regarding security and regulatory policies still exist. Users also want applications that are easy to use and in accordance with their daily needs. This suggests that in order to increase acceptance, applications must be designed with user preferences and needs in mind, as well as ensuring data security and regulatory compliance. A survey conducted to measure the level of public awareness and readiness in using digital financial services showed that although awareness was quite high, many respondents felt less ready to adopt these services. Several respondents cited concerns about data privacy and lack of financial literacy as key barriers.

These findings underscore the importance of educational programs that can improve financial literacy and build trust in digital financial services. Based on findings from literature studies, interviews, and surveys, a digital financial application prototype was designed with a focus on ease of use, security, and functionality. Key features embedded in the application include bill payments, money transfers, and purchasing other financial products. An intuitive interface design was developed to ensure that the application is easy to use by all groups, including those with low levels of digital literacy. The application development was carried out using an agile method approach to allow for flexibility and rapid iteration. Security features were a top priority to address user concerns about privacy and data protection. The application was trialed with a limited group of users to evaluate performance, ease of use, and security. Feedback from this trial was used to make further improvements, ensuring that the application developed truly meets user needs. After development was completed, the application was implemented and distributed to the Indonesian public through various channels, including social media, online marketing, and collaboration with existing financial institutions and fintech. This implementation strategy was designed to reach a wide user base and encourage application adoption. Training programs and workshops were also held to improve financial literacy and build user trust in the application. The application impact evaluation is conducted periodically to assess the effectiveness and efficiency in improving public financial access. Key performance indicators include user adoption rate, transaction volume, and user satisfaction rate. In the long term, this application is expected to make a significant contribution to economic development by increasing financial inclusion and financial literacy in Indonesia. By providing easily accessible and secure financial services, this application aims to empower individuals and communities, especially in remote areas, to actively participate in the national economy.

The development of this mobile-based digital financial application is an important step in improving financial access in Indonesia. However, continued efforts are needed to overcome existing challenges and adapt to the changing technological and regulatory landscape. Future research will focus on integrating advanced technologies such as artificial intelligence and machine learning to personalize financial services and improve user experience. Furthermore, expanding the reach of the application to underserved populations remains a priority, ensuring that the benefits of digital financial services are accessible to all Indonesians. This comprehensive approach aims not only to provide immediate solutions but also to lay the foundation for sustainable economic growth and financial empowerment across Indonesia.

4.2 Discussion

This study highlights the importance of developing digital financial services to enhance financial access in Indonesia. In the current digital era, innovation in the financial sector is crucial to support broader financial inclusion. As described by Mutiasari (2020) in her research on the development of the banking industry, digital transformation has been a major driver in changing how financial services are provided and accessed by the public. Digital financial services, often provided by fintech companies, offer various solutions that can overcome traditional barriers to financial access. This technology enables faster, safer, and more efficient transactions and can reach communities previously underserved by traditional banking systems. Rizal and Wali (2018) emphasize the

importance of technological adaptation in banking operations to meet the increasingly dynamic consumer needs. Wahyuddin *et al.* (2022) underline that digital financial technology not only plays a role in increasing efficiency but also in providing a more inclusive platform for underserved communities. The integration of technology in the financial sector facilitates easier and quicker access to various financial services, including loans, investments, and payments.

However, a major challenge in implementing digital financial services is the low level of financial literacy among the public. Rahmayanti *et al.* (2019) reveal that poor financial attitudes and behaviors can affect a person's financial literacy, which in turn influences the acceptance of digital financial services. Therefore, education and guidance in financial literacy are integral parts of the strategy for implementing digital financial services. Furthermore, regulation and security are also major concerns. Marginingsih (2021) stresses that during the COVID-19 pandemic, fintech played an important role in financial inclusion, but strong regulations are needed to protect consumers and ensure transaction security. This aligns with the findings of this study, which show that concerns about data security are one of the main barriers to the adoption of digital financial services. Effective development strategies must include intuitive and user-friendly interface design, as described by Kurnia and Aziza (2021) in their research on user interface design for digital financial applications. Utilizing user-friendly design can enhance user experience and encourage wider adoption. In a global context, the study by Kandpal and Mehrotra (2019) indicates that fintech and digital financial services play a significant role in financial inclusion, especially in developing countries like India. This experience can serve as a valuable lesson for Indonesia in developing an inclusive and sustainable digital financial ecosystem. This study asserts that the development of digital financial services holds great potential to enhance financial inclusion in Indonesia. However, successful implementation depends on the ability to address challenges related to financial literacy, regulation, and security. Collaboration between the government, financial institutions, and fintech service providers is essential to create an environment conducive to the growth of digital financial services. With the right approach, digital financial services can be an effective tool for empowering communities and driving inclusive economic growth.

5 | CONCLUSIONS AND FUTURE WORK

This study successfully designed and developed a mobile-based digital financial application aimed at enhancing financial access for the Indonesian population. Through both qualitative and quantitative approaches, this research provides a deep understanding of the needs and challenges faced by the community regarding digital financial services. The implementation of this application is expected to make a tangible contribution by opening access to digital financial services and improving financial literacy in Indonesia. Regular evaluation and monitoring will be crucial to ensure that the application remains relevant and beneficial in addressing future financial inclusion challenges.

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